PROJECT
facts

DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY

THE SNOX™ PROJECT—MEETING CLEAN AIR STANDARDS AND PRESERVING OHIO JOBS

PRIMARY PROJECT PARTNER

ABB Environmental Systems
Knoxville, TN

MAIN SITE

Niles, OH

TOTAL ESTIMATED COST

$31,440,000

COST SHARING

DOE	**$15,720,000**
Non-DOE	**$15,720,000**

Project Description

With funding from the Department of Energy's Clean Coal Technology Program, Ohio Edison is demonstrating a way of meeting the stringent air quality requirements of the 1990 Clean Air Act Amendments without sacrificing the jobs of high-sulfur coal miners in the midwestern United States.

The key is technology—an advanced technology called SNOX™ marketed by ABB Environmental Systems of Knoxville, Tennessee. The SNOX™ technology is being demonstrated at Ohio Edison's Niles power plant, where it is cleaning coal combustion gases, removing over 95% of the sulfur dioxide (SO_2) and more than 90% of the nitrogen oxides (NOx), the two pollutants targeted by the acid rain provisions of the 1990 Clean Air Act Amendments. The SNOX™ system is treating one-third of the coal combustion gases from a 108-megawatt boiler.

Unlike conventional scrubbing technology, which reduces only SO_2, SNOX™ also destroys NOx, which contributes to urban smog. As an added benefit, SNOX™ produces no waste products, only high-quality sulfuric acid that can be sold to offset costs. The system is also designed to capture heat from the process and return it to the boiler, boosting the efficiency of the power plant.

Based on the success of the Clean Coal Technology tests in Ohio, Ohio Edison is retaining the SNOX™ technology at Niles as part of its Clean Air Act compliance strategy. The decision to use this technology allows the plant to continue burning Ohio high-sulfur coal without compromising air quality.

Program Goal

The SNOX™ project has direct reference to the goal of the Clean Coal Technology Program: to facilitate commercialization of advanced coal-based technologies and develop opportunities for economic growth and export. The project also demonstrates how the efficiency and environmental performance of coal-fired power-generating systems can be increased to make them highly profitable and to comply with the most stringent environmental regulations.

Project Partners

OHIO EDISON COMPANY
Niles, OH
(host utility and cofunding)

OHIO COAL DEVELOPMENT OFFICE
Columbus, OH
(cofunding)

SNAMPROGETTI USA
New York, NY
(process designer and cofunding)

HALDOR-TOPSOE
Copenhagen, Denmark
(patent owner for process technology, catalysts, and WSA tower)

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CONTACT POINTS

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Project Benefits

When Congress created the Clean Coal Technology Program in 1986, a key goal was to demonstrate new coal technologies that could reduce acid-rain-causing emissions without major economic dislocations in those parts of the country that depend on low-cost, high-sulfur coal supplies.

The SNOX™ demonstration at Ohio Edison's Niles plant is an example of how that goal is being met. Since the completion of the government cofunded demonstration in September 1995, the Ohio utility has operated the SNOX™ unit commercially — a decision that allows it to continue using high-sulfur Ohio coal.

In fact, because a key benefit of SNOX™ is that it produces saleable sulfuric acid as a by-product, the economics of the system actually improves with higher sulfur coals. Other advantages of SNOX™ include:

- Reduction of both SO_2 and NOx in a single system
- No production of solid wastes
- The capability to recycle process heat back to the boiler, boosting power plant efficiency
- The flexibility to retrofit existing plants with SNOX™ or to install the technology as part of a new power plant.

Capital costs of the SNOX™ process are competitive with conventional technologies. Operating costs are kept low by the sale of sulfuric acid and the recovery of thermal energy, and by the fact that no SO_2-absorbing reagent is needed.

The SNOX™ process was first developed in Europe, where acid rain controls were imposed more than a decade before those in the United States. It is being offered for use in utility and large industrial boilers under license by ABB Environmental Systems.

Cost Profile (Dollars in Millions)

	Prior Investment	FY95	FY96	FY97	Future Funds
Department of Energy *	$15.05	$0.65	—	—	—
Private Sector Partners	$15.05	$0.65	—	—	—

* Appropriated Funding

Key Milestones